On Ringworm

WILLIAM J. SMITH, M.B.

ON

RINGWORM:

AN INQUIRY INTO

THE PATHOLOGY, CAUSES, AND TREATMENT

OF THE SEVERAL DISEASES TO WHICH THIS TERM HAS BEEN APPLIED.

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PREFACE.

The term 'Ringworm' has not been limited to one disease; and its signification, never very precise, has become less and less so, till the name now implies little more than the existence of an eruption which is circular or ring-shaped. It was applied originally to those affections of the scalp in which the hair breaks off short as if it had been nibbled by a moth-worm; and from this resemblance (rather than from the actual presence of an insect), and the shape of the affected patches, the name 'Ringworm' first derived its origin. Tinea tonsurans and favus were, therefore, the original forms of Ringworm, but to these several others have since been added.

Tinea and Porrigo are other titles which have been given to some of these diseases; the former,

derived from *porrum* an onion, having reference to the scaliness of the eruption, and the latter, which literally translated means moth-worm or moth-grub, being nearly synonymous with 'Ringworm.' Dr. Jenner, however, has defined 'Tinea' as 'the generic name of all the diseases of the skin characterised by the existence of vegetable growths in the substance of the hair;' and, in the following pages, I have employed this term in preference to 'Porrigo,' which has been used so vaguely that it would be well to discard it altogether.

In the hope of rendering the subject somewhat more intelligible, I have described not only those diseases of the skin previously called 'Ringworm,' but others which resemble and are therefore liable to be mistaken for them. I have also subjoined the synonyms in every case where, from the application of the same term to two different disorders, there is any probability of error or confusion.

10 Finsbury Place South, E.C.
August 1867.

RINGWORM.

SCABIES.

Ringworm—understood in the strict acceptation of the term, viz. as a ring-shaped eruption caused by the action of an animal parasite—is of very rare occurrence; for though, of the twelve diseases described in the following pages, viz.

Scabies	Roseola annulata
Tinea tonsurans	Erythema circinnatum
Tinea decalvans	Lichen circumscriptus
Tinea favosa	Pityriasis
Herpes circinnatus	Eczema
Herpes iris	Psoriasis circinnata

there are two which are wholly due to the presence of a fungus or vegetable parasite, and a third in which a cryptogam, though not absolutely necessary, is very often present, there is only one that can be ascribed to the action of an insect or animal parasite. This one, scabies, or itch, varies greatly in appearance, and I include it in

my description of the ringworm group because its eruption occasionally, though rarely, assumes a form in which it is liable to be mistaken for that of other diseases of this class. The following cases of the kind have recently come under my notice.

S. B., aged 3, had, three months ago, a few scattered pimples on the chest, feet, and hands, which were regarded by the mother as of no importance, and were said to have got better rather than worse, though allowed to run their course unchecked by treatment. During the three weeks previous to this patient's visit to me, several circular and oval patches had appeared on the back; some as large as, others smaller than, a half-crown piece. The patches were red and rough, and had pimples, papular and vesicular, scattered over them; in some, the centres were quite free from eruption, but, in others, were affected equally with the margins. On the chest was a solitary patch, which, except that the pimples on it were less numerous, resembled those on the back. From one or two of the vesicles could be traced the *cuniculus*, or narrow line produced by the passage of the insect through the skin; and if any doubt had still prevailed in my mind as to the nature of the disease, it would

have been at once removed by examining the hands and feet on which were a few of the typical vesicles of scabies. A sister of this child, seven years old, had similar circular patches on the back, and a brother, aged seven, had the same disease in a more common form. The mother had a few papules on the arm, but her husband was quite free from cutaneous disorder. The two children first referred to were brought to me by the mother to be treated for ringworm, the eruption on the hands and feet being so slight as to have almost escaped her notice. The remedies for itch were applied, and cured the disease quickly.

There is no cutaneous disorder which, under different circumstances and in different individuals, presents such various appearances and the nature and origin of which are so often overlooked, as scabies or itch; whilst the increasing frequency with which this disease is now met with amongst those in easy circumstances, with itscontagiousness, render it highly important that it should be well understood; especially as, when detected and properly attended to, there is hardly any affection which yields more readily. In many cases of itch there exist patches which, occurring singly, would be liable to be

mistaken; but, being accompanied with an extensive eruption of a kind common in such cases, are readily recognised; in the instances enumerated above the patches were well marked, but the rash on the rest of the body so slight that a hasty examination would probably have led me into error.

The parasite which, by burrowing into the epithelial tissue of the skin, produces the disease called scabies, occasions an eruption that, as I have already hinted, varies greatly both in appearance and extent. The cause of this difference is sometimes, but not always, intelligible; thus, as the insect prefers the inner to the outer aspect of the limbs because of the greater thinness of the epidermis of the former, so the eruption will spread more rapidly in persons of delicate skin than in others in whom this tissue is thick and coarse: again, the health has much to do with the appearance the rash assumes, for, when the patient is delicate and weakly, the eruption is attended with the formation of matter. The purulent and ecthymatous forms of scabies are in this way to be accounted for, and require constitutional as well as local treatment. This modification of a rash through an alteration in the general health, is often seen in other

skin diseases than that now under consideration. In lichen urticatus, for instance—a common and very troublesome form of nettle-rash in young children—there usually remain, after the subsidence of the redness, little hard papules; but, if the health gets impaired, vesicles, pustules, and boils are apt to form; after this, if the patients become strong again, the affection, though not cured, will resume its papular condition. For the same reason it often happens that, when several members of a family are attacked with itch, the delicate ones have scabs and sores, whilst the more robust are troubled with a few vesicles or papules only. A third and important cause of difference in the aspect of the rash is a pre-existing tendency to cutaneous disease; thus, a patient, who has a predisposition to some particular form of skin disease, may have it developed to a high degree in consequence of the irritation caused by the presence of the *sarcoptes hominis* (itch insect); and it is needless to observe that, as long as the parasite, being overlooked, is allowed to remain, the remedies applied for the relief of the secondary disorder will necessarily and inevitably fail. The appearance of the rash is also often modified by applications made before the patient

comes under the notice of the Surgeon; on the other hand, there exists sometimes a peculiar sensitiveness to irritants, which is not connected with the thinness or other appreciable textural condition of the skin, and is possibly dependent on the innervation of this tissue.

Of the contagiousness of scabies, and therefore of this form of ringworm, there is, of course, no doubt; but the circumstances under which the disease is communicated, and the preference the insect has for certain individuals are sometimes very strange, and by no means easily explained. An instance has come under my notice of a child, who for several months had been troubled with a rash, the nature of which (scabies) had been misunderstood, and which yielded immediately to sulphur applications. The disease was not communicated to his mother, with whom he had slept frequently, but attacked a little playfellow and one of two nurses who had attended to him. Cases of this kind are not altogether rare, and must have been witnessed by those who are consulted frequently for diseases of the skin.

Itch can be communicated only by contact of the individual with the insect or its egg, and, though the latter is motionless and powerless until hatched, it may be conveyed from one

person to another by bed-linen or articles of dress, and will, when developed, produce all the phenomena of scabies. The warmth of the body is favourable to and assists its development. The opinion, still entertained by some, that the prevalence of scabies among the Scotch is due to their fondness for oatmeal porridge is, of course, erroneous; and this or any other article of diet can exercise no influence on scabies, except in so far as it creates a tendency to eczema or some allied disease which is then excited or aggravated by the presence of the itch insect. There is little doubt, I think, that the *acarus* sometimes causes the evolution of pimples at a part quite distant from that in which it is actually seated. This, which is effected by reflex action, was well illustrated in a case published by Mr. Wilson. One hand was unmistakably affected with scabies, and a doubtful rash on the opposite side of the body (not on the hand) disappeared; *pari passu*, with that on the hand to which alone sulphur was applied.

Though warmth is favourable to the development of the itch insect, I have had, in hospital practice, many more cases during the winter than the summer months; and account for the fact by supposing that the poor, who have often but

scanty means of protecting themselves from cold, huddle more closely together in cold weather, and thus facilitate the spread of the disease.

Diagnosis.—The idea that itch is always associated with uncleanliness and limited to the poor is, in every sense, erroneous; for the insect will attack those who are scrupulously cleanly, and the number of cases of this disease occurring amongst the wealthy is now very large, having increased considerably during the last few years. I mention this, as I am sure that some of the mistakes occurring in private practice owe their origin to such a theory, which seems to be true of Paris, though not of London. So common is scabies and so often is it overlooked, that I am in the habit of seeking for its signs in every case of skin disease affecting trunk or limbs; for, when unrecognised, it may, and sometimes does, persist for years.

The chief and unerring sign of scabies is the presence of the *acarus*, a small white insect, of round or oval form, just visible by the naked eye ($\frac{1}{80}$ to $\frac{1}{150}$ of an inch in length and $\frac{1}{90}$ to $\frac{1}{200}$ in breadth), which is covered with fine hairs, so directed as to prevent or impede its retrogression along the canal it has burrowed in the skin. It is almost useless to seek for these

insects on the surface of the body, as, in consequence of their diminutiveness and of their colour, which is so much like that of the skin, they are almost sure to be overlooked. But they may be detected in the *cuniculi* (burrows made by them in the skin), and can be easily removed from thence by the aid of a needle. They are seated at the end of the furrow, and not in the vesicle or papule. These observations apply only to the female insect; for the male, which is the smaller of the two, is more active in its habits, and runs only on the surface of the skin. Of the female Dr. Anderson writes thus: 'When placed upon the skin, it seeks a suitable spot, and then, its head raised at right angles to the skin, it penetrates into the deeper layers of the epidermis, where it lies imbedded and derives its nourishment. If impregnated, as is usually the case, an egg is soon laid, to make room for which the insect burrows a little farther. Each day a fresh egg is laid, and each time the insect penetrates farther, leaving its deposited eggs to occupy the space formerly inhabited by itself. The direction of the canal thus produced is oblique, the portion first formed being nearest the surface.' When hatched, the young female 'crawls about the skin, meets its mate, becomes

impregnated, and then burrows likewise, and repeats the process just described.'

The line indicating the canal burrowed by the insect is the next most trustworthy sign of scabies; but I have known mistakes arise in consequence of patients having pricked the vesicles and neighbouring skin in such a way as to produce artificial *cuniculi*, which have closely resembled those made by the insect. The value of this sign is evident, when we remember that, in a few rare cases, it has been the only one visible (the presence of the insects excepted), the skin, less sensitive than usual, having been perfectly free from any kind of rash, though the itching was as marked as ever. The length of the *cuniculus* is liable to variation, some burrows being a line or two only, and others an inch long.

The pointed instead of globular shape of the vesicles, though of some value in determining the nature of a doubtful case of scabies, could not be alone trusted to, and is wanting when the vesicles are deeply imbedded in the skin.

A more valuable guide is the history of the attack, which will sometimes even enable the Surgeon to determine the nature of the disease with tolerable accuracy without examining the

patient, and will often aid him in ascertaining the character of an eruption which, but for such assistance, might have proved somewhat puzzling. In the cases I have described, the fact, that a third child had a scattered eruption whilst the mother had a few pimples on the arm with which she nursed one of the affected children, was enough to have excited a suspicion of scabies, even if the patches themselves had failed to do so.

Many cases, otherwise perplexing, will be rendered intelligible by remembering, 1st, that itch is a common complication of other pre-existing skin diseases; and, 2ndly, that, when communicated to a person whose skin was previously sound, it may occasion an eruption which shall resemble nettle-rash, prurigo, eczema, lichen, ecthyma or impetigo; and in such cases, will persist till, the presence of the *acarus* being detected, proper measures are adopted for the destruction of the insect. In those cases of scabies which simulate ringworm, there will be always some scattered pimples; and these, together with the history of the attack, will generally lead us to a right conclusion. If there still is a doubt, the insect should be sought for. I attach no value to the character of the itching

as a means of distinguishing scabies from other diseases, being sure that, for this purpose, it is absolutely useless.

Treatment.—Sulphur is, of the many remedies which have been recommended for the cure of scabies, the most powerful and trustworthy, and that on which the Surgeon can, in all cases, safely rely. Its strong and disagreeable odour renders it objectionable, it is true, but the difficulty arising from this source can be easily overcome, and a very good means of doing so is to scent whatever preparation may be used with some such substance as the essential oil of bergamot. If the insects were seated only on the surface of the skin, the cure of scabies would be much more easy than it is; for, lying as some do in the *cuniculi*, they are apt to escape for a time from contact with the sulphur, which, though well rubbed in, may fail at first to pass into the burrows. To obviate this difficulty, some are accustomed to add an alkali, which, by exercising a solvent action on the epidermis, helps to expose the parasite. The irritation thus occasioned in persons of delicate skin is, however, sometimes so great, as to constitute a grave objection to the plan, especially as no case of scabies will resist simple sulphur

applications when properly and carefully conducted.

I prefer an ointment to a lotion, for the treatment of scabies, though, should the patient especially desire it, the latter may be always used. Sulphur may be also employed in the form of a bath, but its action is then less certain that when applied as an ointment. The valuable observations of M. Albin Gras, made in the year 1834, may be cited in confirmation of this opinion: 'I was enabled to obtain living acari from a patient who had taken two or three sulphur baths, containing four ounces of sulphuret of potass to the bath. On the contrary, I have frequently found them all dead after a single friction with the sulphuro-alkaline ointment.'* The liquor calcii pentasulphureti is an excellent ingredient for a lotion; but lotions cannot be kept in contact with the skin for so long a period as ointments which, being applied at night, may be left till the morning. The compound is, in my opinion, preferable to the simple sulphur ointment of the pharmacopœia; but it is also the more irritating of the two, and should be used carefully, if at all, for infants, whose skins are

* Diseases of the Skin (Wilson), 1842.

sometimes so delicate as to be greatly irritated by one or two applications only.

Patients, both in hospital and private practice, should be warned that substances containing sulphur will, if applied long enough, produce an eruption which depends solely on the remedy employed; the period within which this will occur depending on the sensitiveness of the skin, the strength of the preparation, and the frequency with which it is rubbed in. It often happens that patients are so satisfied with the improvement effected by the first few applications of the ointment that, to get rid of the remaining traces of the disease, they think they have only to use the remedy a little oftener than before, and, in so doing, produce an eczematous eruption which is aggravated each time the ointment is applied. When the anointing is discontinued, the skin in such cases generally returns rapidly to a healthy state. I remember an instance in which, for the cure of the secondary eruption, a variety of stimulating substances had been prescribed, till at last nearly the whole of the patient's skin was red, rough and scaly, as if from pityriasis, but soon regained its natural condition when the rubbing was disallowed.

Though sulphur kills the *acarus*, it does not

destroy the vitality of its egg; and hence, though all the living insects may have been annihilated, the disease is not of necessity eradicated; for the ova will be developed and will multiply, if left alone, till all the symptoms are as troublesome as before. This consideration helps to explain what will be frequently observed in practice; viz. the occurrence of a few scattered pimples (with *acari*) for two or three weeks after the apparent cure of the disease. Patients should be always told to keep a sharp look-out for these, and should apply the remedy as soon as they appear; for I am sure, that though the rash may fade and the pruritus disappear within two or three days, the disease will be always prone to recur if the treatment is neglected at this period. I am, of course, aware that pimples may arise after an attack of scabies which do not depend on the presence of the parasite: in fact I have repeatedly noticed, for some time after this disease, a peculiar irritability of the skin, sometimes with, at others without, the occurrence of papules. For this a lotion of bichloride of mercury has generally afforded immediate relief.

It should be remembered that the disease may be reproduced by the parasites or their ova adhering to the dress, and hence fumigation of the

clothes is desirable, though not absolutely necessary. It is not indispensable, because the insect prefers and is ultimately attracted to the skin, where, sooner or later, it would be destroyed. Moreover, the eggs are not injured by fumigation, so that this process cannot be trusted to for the purpose of stamping out the disease. Sulphurous acid gas, which is easily produced by burning some brimstone, is the best agent for this kind of disinfection, but, should be used carefully, as it is highly poisonous. Exposure of the clothes to a high temperature, either by placing them in an oven or by ironing them, may also be had recourse to with the same object; but it is by no means certain at what temperature the vitality of the eggs is destroyed, and there is no doubt they will tolerate one higher than that at which the perfect insects die. Disinfection of the clothing, therefore, however carried out, must not be implicitly relied on; for, though all the acari are destroyed, if two or three eggs still live, they will be hatched, and, unless killed very quickly after incubation, the insects from them will lay more eggs which are not injured by the sulphur that destroys their parents. In this way the few isolated pimples (with *acari*), which are apt to appear after the subsidence of the chief symptoms

of scabies, may be accounted for; and, to prevent such a prolongation of the disease, the newly hatched insects must be destroyed before they have had time to deposit eggs.

Sulphur, though the best remedy for scabies, is not the only one; and, when patients have an invincible antipathy to its use, one of the following substances may be employed instead—bichloride of mercury, camomile, stavesacre, tobacco, camphor or hellebore. But sulphur is so far superior to any of these, and may have its colour and odour concealed so effectually, that I am always in the habit of prescribing it, and rarely find its use objected to by patients.

I have as yet said nothing respecting the constitutional treatment of itch, and believe that, though this disease will not get well spontaneously, it never resists the action of sulphur when applied locally and in a judicious manner. On the other hand, there are many cases of scabies for which general remedies, if not strictly necessary, are very beneficial; and, for the pustular and ecthymatous forms which indicate an enfeebled state of health, tonics should always be administered. The kind of eruption produced by the insect will also sometimes serve as a guide to the line of treatment it is expedient to adopt;

thus, a person who is liable to eczema will get, from the irritation of the *acarus* and independently of any remedies that are applied, an eczematous eruption, which will be much benefited by the same regimen and treatment that would have been prescribed had there been no scabies.

Will sulphur cure scabies, when administered internally? There is no doubt that, when so given, it is in great part exhaled from the skin in the form of sulphuretted hydrogen gas; and articles of silver, retained in the pockets of persons who are taking it, become blackened from this cause; but, on the other hand, it is equally certain that patients sometimes take sulphur internally for a long period without obtaining any relief from the itching or the eruption of scabies. Nevertheless, some still recommend the internal administration of this drug in conjunction with, rather than as a substitute for, its outward application.

As the eruption is fading, and, from the first, in those whose skins are very delicate, I am accustomed to dilute the sulphur ointment with that containing white precipitate. The latter, though less irritating than the former, is still obnoxious to the insect, and is particularly useful for hospital patients, as, in these, scabies is often attended with pediculi.

TINEA TONSURANS.

Syn. Herpes tondens. Trichinosis furfuracea. Rhizo-phyto-alopecia. Porrigo scutulata.

Ringworm of the head assumes three forms; or, rather, there are three distinct diseases of the scalp to which the term 'Ringworm' is frequently applied. They are named Tinea tonsurans, Tinea favosa, and Tinea decalvans. Of these, the first two always exhibit, and are entirely caused by, a fungous growth which spreads around the root, and within the substance, of the hair; but, in the third, I have never detected anything of the kind, and other observers who have been more fortunate than myself in this respect have found a cryptogram so rarely as to convince me that its presence is entirely accidental.

In tinea tonsurans, a patch of the scalp becomes scurfy, and the hairs at this part either fall out or become altered in character. Sometimes they break off at a short distance from the skin so regularly as to look as if they had been cut; at other times, irregularly. Some become twisted, changed in colour, dry-looking, and brittle. Similar changes to these last are sometimes, but not always, perceptible in the

remaining parts of the broken hairs. Occasionally there is a central bald spot surrounded by a ring of short hairs, external to which the hairs, though long, are altered more or less in the manner I have described. If a bunch of hair seated on a patch of tinea tonsurans be pulled with only moderate force, it will sometimes come out very readily, leaving a bald spot; but, in other cases, the brittleness of the hairs preponderates over the loosening of their roots, and they then break off instead of coming out.

It is thus evident that baldness, though a common result of, is by no means necessary to, tinea tonsurans; even the clipping of the hairs may be absent, for I have seen a child, nearly the whole of whose scalp was attacked by tinea tonsurans, who had neither a bald spot nor a patch on which the hairs were notably short. The skin of the head was scurfy, and the hairs were twisted, dry, brittle, and shorter probably than they would have been had the head been healthy, but not broken off close in the manner just described. The scurf and hairs, when examined by the microscope, were found to be infiltrated with the spores of the fungus on which tinea tonsurans depends (tricophyton tonsurans). A sister of this patient had the same

disease, and, on her head, were two or three bald patches.

In rare cases, the patch may be covered with a scab instead of being scurfy; this was well seen in a little girl, aged nine, who was brought to me at the Victoria Hospital for children; she had on the scalp a circular patch, which was in part covered with a thin crust, whilst from the rest of its surface there oozed a pale serous fluid. There were patches of eczema on the face, and the disease on the head seemed to be of the same nature, except that the hair on the affected part was short as if it had been cut. These short hairs seemed healthy, as far as I could judge by the naked eye, and the mother remembered cutting some hair from the head of one of her children, but was not sure whether this was the one or not. Having under my care at the same time a younger sister, who was suffering from tinea tonsurans in its usual form, I suspected the existence of a fungus in this case; and, on examining microscopically some of the short hairs which, as I have said, were not altered in general appearance, I found in them spores of the trichophyton tonsurans. This shows the importance of the microscope in determining the nature of some diseases of the

skin; for though, if this patient had been treated for eczema only, the fungus would probably have produced, before long, distinct evidences of its presence, the microscope enabled me to detect at once the true nature of the disorder, and, having done so, I was enabled to adopt a plan of treatment which cured the child quickly. There was no fungus in the eczematous patches on the face. This case is unusual; and it may be laid down as a rule, to which there are very few exceptions, that, in tinea tonsurans, the skin is scurfy, but without scabs. When vesicles or pustules appear, they may be accounted for in one of two ways.

1st. By supposing that the patient gets eczema or impetigo of the scalp, and that the sporules of the fungus, being conveyed to the parts so affected, grow and multiply there more readily than on the healthy skin.

2ndly. On the supposition that the sporules, coming into contact with a part of the scalp previously sound, irritate it so much as to excite the formation of vesicles and pustules, in the same way that a strong liniment or ointment might. That some fungi can do this there is of course no doubt, for suppuration is a common occurrence in favus, whilst the fact of its

happening but rarely in tinea tonsurans is not unintelligible, when we remember that lotions and ointments, which have no effect on the skins of some persons, greatly irritate those of others. This difference though in part attributable to the skin itself, often depends still more on the state and condition of the general health. When the patient is delicate, suppuration is readily excited; and I have sometimes noticed that applications, made for the relief of tinea tonsurans and tinea decalvans, which at first excited pustular and eczematous eruptions, have, after being discontinued while tonics were administered, been employed again without producing the slightest irritation.

The appearances above described are the result of the growth of a fungus on the surface of the skin, into the pits in which the hairs are imbedded, and thence up the interior of the latter. This growth interferes with the nutrition of the hairs which become altered in appearance, and, if the hair-producing power is feeble, fall out. The fungus (tricophyton tonsurans) consists of both spores and mycelium, the former of which are very numerous constituting the great bulk of the plant; they are small circular and oval bodies, which resist the action of acids, alkalies, and

ether. The hairs themselves are much changed, becoming darker in colour and more opaque, whilst the fibres at the free ends of the broken ones are separated from each other, looking like the hairs of a paint-brush. The cuticle of the hair is often detached; and pieces of it or the ends of the subjacent fibres may be sometimes seen projecting at different points along the margins. The scurf of the affected part consists chiefly of epithelial scales infiltrated, like the hairs, with the sporules of the fungus. The microscope is, of course, necessary for the observation of these phenomena which are often visible without the use of a reagent, the hair being placed merely in a drop of water; but the addition of a little liquor potassæ will greatly assist the observer, as this substance renders much of the animal matter transparent, and so makes the fungus more readily perceptible.

Diagnosis.—This form of ringworm is readily distinguished, but it must not be forgotten that baldness is not a necessary symptom; scurfiness of the scalp, with brittleness, twisting, dryness, and harshness of the hairs, being the points to be attended to. When there is a bald patch, the hairs around are sure to be diseased; in fact, the changes in the hairs themselves are the only

naked-eye characters that can be trusted to. The aid of the microscope will be occasionally required; thus, I have under my care at the present time a lad, the upper part of whose scalp is covered with a scurf which, in general appearance, resembles that of tinea tonsurans; the hair at this part of the head has got thin, though there is no patch which is absolutely bald. The hairs themselves, which have been cut short, feel dry and harsh, and are somewhat inclined to twist; so that, at the first examination, I rather expected to find the tricophyton. After repeated and careful examinations, however, I have failed to do so, and the patient, who has been treated for simple pityriasis, is now getting well. Without the microscope, I should have had great doubt, in this case, as to the nature of the disease; for, though the hairs were not much changed, they deviated enough from the normal type to justify a suspicion of the existence of a fungus. It is the only instance of the kind I have seen; for the diagnosis of pityriasis is generally easy, as the hairs which do not fall out usually remain unchanged. Though crusts and scabs are rare in tinea tonsurans, it must not be forgotten that they occasionally form, as in the little girl I have already referred to, even though nothing has been

applied to the part; whilst, if ointments and lotions have been used, their occurrence is not to be wondered at, as, in some children, stimulant applications very readily excite serous and purulent discharges from the scalp.

Tinea tonsurans is highly contagious, spreading in consequence of the sporules of the fungus being conveyed from the head of one person to that of another; and the sporules are so small that they may probably be even wafted in the air. There is, however, something else required beyond mere contact of these bodies, for, unless the scalp of the individual forms a fit soil for their reception, the disease will not take root. The following history is very interesting, in exemplification of this point:—

Mrs. A——, the mother of three children, consulted me on behalf of two of them who had well marked and extensive tinea tonsurans. The disease, which had existed for upwards of a year, had been first communicated to them by the third child, who had caught it at school, but was readily cured by the treatment there prescribed for him. Though the two brought to me had been treated in the same way, they failed to get well, or even to improve; and the other, though eleven months had elapsed since he recovered,

and though he played and slept with one of the children who were still suffering, did not again contract the disorder.

The patient's health will sometimes, though not always, account for the readiness with which the disease is acquired; for, in unhealthy children, the fungus grows more readily and more rapidly than in those who are constitutionally sound. On the other hand, the subjects of tinea tonsurans are often strong and healthy, and the complaint is most common amongst those of the middle and upper classes. Age also exercises an important influence; for tinea tonsurans is met with almost wholly during the period of childhood. One attack affords no guarantee against the return of the disease at some future time. It is probably often communicated by means of hair-brushes.

Treatment.—The applications recommended for the cure of this disease have, for their object, the destruction of the fungus; but the more strumous the child the more vigorously the fungus grows, and hence it is important to adopt such treatment as shall serve to make the subjects of the disorder healthy and robust. For this purpose, steel and cod-liver oil cannot be extolled too highly; a visit to the seaside is also often bene-

ficial, and will, in fact, sometimes cure the disease without any other treatment than attention to cleanliness. Cold sponging and the douche bath, followed by friction with a good rough towel, are, for the same reason, useful.

Great difficulty is sometimes experienced in killing the fungus, because, growing into the recesses in which the roots of the hairs lie embedded, it is apt to elude contact with a lotion or ointment which is applied in the ordinary way to the surface of the skin. To obviate this, some, especially the French, advocate epilation or plucking of the hairs; it being supposed that the material employed will then sink into the open follicles (from which the hairs have been pulled out) and so reach the fungus that has spread into these parts. That the principle of this advice is sound there is, indeed, no doubt, but the practical difficulties which attend its execution are sometimes insurmountable; thus, few Surgeons would attempt to pull out all the diseased hairs in such a case as that already referred to, in which nearly the whole of the scalp was affected; again, though the hairs sometimes come out easily, they are at others so brittle, that, when an attempt is made to remove them, they break off just above the surface of the skin. Epilation, however, is a useful

adjunct to other plans of treatment, and will, when it can be satisfactorily carried out, greatly expedite the cure. The following is a description of the process, as adopted by Bazin:* 'The head is to be thoroughly cleansed; crusts are to be removed and the hair cut close to the scalp; then the surface is to be painted over with the oleum picis juniperi, which soothes the skin, renders it less sensitive, loosens the bulbs of the hair, and at the same time shrivels and destroys the fungus. The next day, the head is to be washed with soap, and epilation is commenced; that is to say, every hair is to be removed over the whole extent of the diseased surface. The accomplishment of epilation may possibly require four to six sittings, for the process is too painful to be borne for a long period at a time, and may require to be repeated twice or even three times, or even more frequently, before the cure is effected. The operator seats himself in a chair, and places the patient on a cushion at his feet; he rests the patient's head on his knees, and then, with a pair of tweezers, patiently removes the hairs one by one, or in bundles of two or three, when they can be fairly seized by his instrument. Having pulled out the hairs over a small extent of

* Treatment of Diseases of the Skin. Milton.

surface, he brushes it over with a solution of the bichloride of mercury, to destroy the fungus both on the surface and in the patent follicles, and then goes to work again in the same manner, from time to time resting, to moisten the skin with the solution, until he has proceeded as far as the patient can bear. Four or five hours after this operation the head is to be thoroughly anointed with a parasiticidal ointment. On the following day, the washing, the epilation, the painting with the bichloride of mercury lotion, and the anointing with the phyticide pomatum, are to be repeated as before, and continued daily until every hair growing on the diseased portion of the skin, and for a short distance beyond, has been removed. This process is painful, but not,' according to Bazin, 'so painful as the avulsion of healthy hairs; and the pain may be much reduced by drawing gently but forcibly on the hairs in the direction of their implantation in the skin.' Epilation is rendered easier by blistering the part, and a strong solution of iodine or cantharides may be applied to a fresh spot, for this purpose, every or every other day.

The substances which have been found to exercise the greatest influence in destroying the

fungus of tinea tonsurans are—bichloride of mercury, white precipitate, sulphur, iodine, carbolic acid, sulphurous acid, and strong sulphuric acid. Shaving the head is frequently had recourse to for the cure of this disease, but the patients generally complain that as the hair grows again the old symptoms return. That this should be so, and that shaving *per se* will not eradicate the disorder, is intelligible when we remember that the fungus extends into the *roots* of the hairs, which are left untouched by this process. Shaving, in fact, is useful only in so far as it facilitates the cleansing of the head, a point of great importance in the treatment of tinea tonsurans but one for which milder measures will generally suffice. The head should be frequently washed with a solution of borax, which answers well for removing the scurf, and a lotion or ointment containing one of the substances enumerated in the above list should be well rubbed in night and morning. The stronger the preparation the better, so long as it does not irritate the skin sufficiently to blister or cause an eczematous eruption. Though a strong blistering application is useful for facilitating the removal of the hairs, and for its directly destructive effect on the fungus, and may be employed once or

twice for this purpose, one which is strong enough to excite a discharge should not be used continuously, as the crusts so produced certainly favour the spread of the disease. When suppuration is very readily excited, the general health must be particularly attended to.

TINEA DECALVANS.

Syn. Porrigo decalvans. Area circumscripta. Alopecia circumscripta. Ophiasis. Tyria. Teigne achromateuse. Phyto-alopecia.

This is the name given to a common and often very troublesome form of ringworm, which, though readily recognised, is differently interpreted by different Surgeons. Its chief symptom is a loss of hair in spots and patches which are thus left completely bald; the skin at these parts being quite healthy in appearance or a little smoother and paler than elsewhere. The patches are generally more or less oval or circular in form, but not necessarily so, and they sometimes become very irregular in consequence of the spreading and junction of several previously distinct ones. When, from this cause, the patches have a tortuous form, the disease has been called Ophiasis. It may show itself at any part of the

head, and does not seem to exhibit a preference for one spot rather than another. There may be one patch only, and that small, or the disease may spread till the whole of the head is attacked; and, in some cases, even the whiskers, eyebrows, beard, and hair of the trunk suffer. Sometimes the patient's attention is drawn to the disease by the accidental discovery of a bald patch, but, in other cases, an abundant falling of the hair from the scalp generally is the first thing that attracts notice.

Occasionally there is nothing to be seen except the baldness, unless the hair around the bald spot or over the head generally is thinner than it should be; but, in other instances, especially when examined during the spread of the disease, a few short club-shaped hairs, darker and thicker at their free ends than elsewhere, and varying from a line or two to a third of an inch in length, may be observed at the margins of the patches. These short hairs are sometimes tolerably numerous.

Either no hair grows on the bald parts for a long time; or beginning to grow it falls out again readily; or, thirdly, the old patches get covered at the same time that the hair falls from another part of the head, the disease being in this

way often kept up for a very considerable period; whilst, lastly, the bald parts may be quickly and permanently restored to their normal and healthy state. The hair which first appears is generally paler than that around it, forming, in fact, a kind of *down*; but it gets, usually, before long, to resemble that on the rest of the head.

Persons suffering from this disease are, generally, in other respects, quite healthy, but sometimes they appear to be rather delicate and feeble.

Pathology.—Tinea decalvans, as is evident from the above description, consists essentially in a loss of hair, which, since the discovery of the parasitic skin diseases, has been ascribed by some to the agency of a fungus. The French speak as if such a growth were invariably present, but English Surgeons have rarely been able to detect it. In the numerous cases I have myself examined with considerable care and attention, I have never succeeded in discovering a distinct vegetable growth; though there is no doubt that a fungus is occasionally present, and an interesting case, in which one was detected, came under the notice of Mr. Hutchinson, and is recorded in the Transactions of the Pathological

Society. As this is the best authenticated instance with which I am acquainted, I will take the liberty of copying Mr. Hutchinson's description of it.*

'Mr. B., a robust man, at 48, with his two children, Maria, ætat. 10, and Frederick, ætat. 7, was sent to me by Mr. Ballard, in April 1862. About four years ago, Mr. B. noticed his whiskers begin to fall out. The hairs fell gradually, but in abruptly defined patches. In about three months, the hair had fallen, almost over the whole chin and cheeks, but it was already beginning to grow again at the parts from which it had fallen. The patches were quite bare, "the skin as smooth as glass." He was not ill in the least. It next spread over the occiput, and then up to the vertex, and passed, in irregular patches, over the entire scalp. He was, for a time, almost totally bald, but always had some patches of hair. His eyebrows were not affected. On two patches on his right arm the hair fell.

'His present condition is as follows: — His whiskers, beard, &c., are bushy, and as strong as ever, black, with a few scattered white hairs; eyebrows and eyelashes perfect. Entire scalp

* Transactions of the Pathological Society of London, vol. xiii.

bald, except a thin scattering of white hairs over the vertex, and a tuft of black hairs on the right side near the ear. The occiput is totally bald and glossy. The white hairs on the vertex, although long, are very slender and ill-grown. He wears a wig. There is not the least scurfiness on any part.

'The growth of white hairs on the scalp has, no doubt, been in part due to the patient's age; but that the baldness is caused by the disease, and is not senile, is proved by the fact of the occiput being totally denuded, whilst a tuft or two of black hair still exist on one part of the vertex.

'About the same time that the father began to be affected, the girl also showed patches on the scalp. It spread rapidly, still keeping most accurately the characters of alopecia. In three or four months she had become totally bald and had lost her eyebrows also. She was in perfect health. After a while, the hair grew again in patches, and again fell off. At present, she is quite bald, excepting a little thin down over the whole, and two small tufts of strong black hair on the vertex. Her scalp is much thinned. By continued scraping a little scurf may be obtained, but the scalp is, for the most part,

smooth. Her father had, before the attack, a profuse growth of hair, beard, whiskers and scalp; and the child also had a luxuriant crop of black hair. Both eyebrows have fallen, and the skin is as smooth as possible on these parts. The eyelashes are perfect.

'The boy has had only a single patch. It began three or four months ago. It is on the vertex, about the size of a halfpenny. The hair is already growing again, and the characters are not well marked. There are no broken hairs, as in ringworm. The father was engaged as a silver plater. He was quite unable to assign any cause for the disease, and stated that both himself and children had enjoyed excellent health throughout. They did not keep any tame animals, and he was not aware of any exposure to contagion.

'Sporules of fungus were found in the epidermic scales, scraped from the patches of all three patients. Specimens were exhibited to the Society, which had been obtained from the father and the girl. The fungus was especially abundant on the girl's scalp. A month later, I again verified the observation, and also noted another interesting fact. On the father's arms, which were naturally rather hairy, were large

patches completely destitute of hair, and perfectly smooth. On these, there was not the slightest scurfiness. By scraping I detached some epidermic scales from these patches, and found in them fine specimens of fungus.

'In each instance, the epidermic scales were placed in a very weak solution of potash before examination. With regard to the state of the hairs, I should state that, in most that were pulled out, I found the bulbs, as usual, wasted and tapering, but I could not discover any evidence of the presence of fungi, either in their shafts or bulbs. On the shafts, and at their terminal extremities, however, not unfrequently a few sporules were seen adherent. The free extremities were, in a few instances, opaque, and broken up into fibres, brush-like, as is seen in the hairs of true ringworm; but this condition in no instance involved more than an exceedingly short portion at the end. The sporules were chiefly found either in or upon the epidermic scales, or floating free. But few thalli were seen.'

A few other observers have met with a cryptogam in this disease; but its influence cannot be great when it is present only in such minute quantity as that in the cases to which

the following extract refers.* 'In the root sheaths of two or three hairs I found a number of oval and quadrangular cells, placed end to end, or clustering together, looking like vegetable spores. They were insoluble in ether, liquor potassæ, and strong sulphuric acid. These spore-like bodies were about the 1·3600th of an inch in diameter. There were also on one of the hairs what appeared to be the mycelium of a fungus. The amount of parasitic growth was altogether but very small.'

When, therefore, in the majority of cases no fungus can be found, and in the remainder, with few exceptions, only a small quantity of what is hardly more than a questionable vegetable growth, it is, I think, scarcely reasonable to ascribe the fall of the hair to this particular agency. I am fully aware of the importance of looking for the fungus during the spread of the disease, as it is quite possible that, having destroyed the vitality of the hair and caused it to fall out, it may itself die, leaving the baldness as the result of its action. But I have been equally unsuccessful in my search for the parasite, whether the disease was extending or not. Moreover, the parasitic theory will hardly account for the

* Lancet, Oct. 1st, 1864. Paper by Dr. Hillier.

extreme slowness with which the new hair often grows; for though, in a few cases, the baldness is recovered from with tolerable rapidity, in others months and years pass without the hair being restored, though no fungus has been detected at any stage of the disease.

The question of the presence or absence of a fungus has a practical as well as scientific interest, and is important in connection with the subject of the contagiousness of tinea decalvans; for, if there be a vegetable parasite, the communication of the disease from one person to another is readily intelligible, whilst, if such a growth does not exist, and there be nothing beyond a simple falling off of the hair, it is difficult to understand how the affection can be in any way contagious. What are the facts in connection with this matter? 1st. Tinea decalvans often exists in one only of several children who associate together. 2ndly. It sometimes occurs, from coincidence rather than contagion, in two or more of many children living together, as in schools. 3rdly. Very rarely, it spreads in a manner which can hardly be explained except by supposing it to be contagious. The following* is the most striking instance of this kind with which I am acquainted. 'In a

* Lancet, Oct. 1, 1864. Paper by Dr. Hillier.

large parochial school at Hanwell, containing from 1,100 to 1,200 children, of both sexes, and from six months to fourteen years of age, a number of children were found all at once to have in their heads patches of baldness quite smooth and pale. The patches varied in size from that of a four-penny piece to an inch or more in diameter. On some children there was but one bald spot; on others two or three. Most of the patches were rounded in outline; but some were more irregular in shape. The number of children affected was forty-three, and they were all girls, from seven to fourteen years of age, who lived together. There was no case of the same kind amongst the infants or amongst the boys, who occupied a separate part of the building. On more careful inquiry it was ascertained that one girl had been suffering from the disease of the scalp, in an aggravated form, for one or two months, and had been allowed freely to associate with the others. On April 30th one of the attendants observed that another child had a bald spot on her head, and called the attention of the doctor to it. This led to an examination of all the childrens' heads, when it was found that between thirty and forty girls were affected in the same way. In the

course of the following week five or six fresh cases were noticed, but after that period none were found.

'The only children attacked were those occupying that part of the building in which there had been a girl suffering from the same affection for some time previously. There were, in other parts of the house, boys of the same ages, of similar constitutions, having the same diet and in every respect similarly treated.' As the author remarks, 'if the outbreak had depended on atmospheric causes, or on the diet or general management of the school, the boys and infants should have suffered with the girls.'

When one of the short hairs that are sometimes found on a patch of tinea decalvans is examined by the microscope, the free end, which is larger and darker than the rest, will be generally found split up into fibres or bundles of fibres, and has, in consequence, the aspect of a brush. These fibres sometimes look healthy, but at others appear granular and degenerate. While the disease is spreading, I have sometimes succeeded in finding hairs which were just about to break off short; and that end of the long fragment which corresponds to the point of fracture presents generally the same brush-like

character. On adding a drop or two of liquor potassæ there may be often seen, in these cases, a number of minute granules and globules, which seem to come out from the interior of the hair, and, dissolving in ether, are evidently fatty in nature. They result probably from a degeneration of the tissue of the hair. I have generally thought that these particles seemed more numerous in hairs which have recently broken than in those which have been for some time short; and, if this be the case, it would appear to show that they escape, after a time, from the free and exposed ends. That they are not vegetable spores is evident from the manner in which they behave to reagents; moreover, the separated fibres are often in a very granular and disintegrated state, suggesting that it is by the breaking up of the elements of the hair that these free granules are produced. But why does the hair break off near to, instead of at some distance from, the scalp? Is it in consequence of the pith, which begins usually about this part? The roots of the hairs which fall out entire are withered, atrophied, and shrunken.

If then the fall of the hair, in this disease, does not depend on the influence and agency of a fungus, to what must it be ascribed? In the

present state of our knowledge, we cannot say more than that it is due to a general want of hair-producing power; but whether this is primarily owing to perverted nervous influence or to defective blood supply, we are not yet in a position to decide. After fever, the hair is apt to fall out, but it does so over the head generally, and not in patches, as in tinea decalvans; but, on the other hand, local changes of nutrition from general and constitutional causes, are by no means unknown to the Surgeon. It is as easy to understand a circumscribed falling of the hair, on the supposition of a general defect in the hair-producing power, as it is to explain the localisation of an eruption which depends, beyond doubt, on the general condition of the health. In other words, the fact that the effects of a disease are limited to one small part does not prove that the disorder is local in its origin. Again, it is not uncommon to find that in tinea decalvans there is, in addition to local baldness, thinning of the hair over the whole head; and, on close examination, I have sometimes found some of the short clubbed hairs scattered in parts in which, beyond this, there was no evidence of disease. I have also seen cases in which the hair breaks off in this way and falls

out, becoming thin over the whole head, but without any distinctly bald spots; and between such a case and one of ordinary tinea decalvans, I can see no more difference than between psoriasis when it assumes the form of many minute spots (psoriasis guttata) and when it occupies one or two large patches only (psoriasis diffusa.) I have under my care, at the present time, a young lady, who consulted me in consequence of the falling of the hair, which I found to be thin, and mixed with a number of short ones: the ends of the latter were split and degenerate, like those I have described as occurring in ordinary tinea decalvans. This lack of hair-forming power is further shown by cases in which not only the hair is slow to reappear on parts which have become spontaneously bald, but also in which it fails to grow where it has been removed by the razor.

W. T. G., ætat. 13½, of fair complexion and pale, had lost, during the six weeks prior to his visit to me, an enormous quantity of hair which 'had come out in handfuls,' leaving several large bald places on the scalp. Three weeks after this the head had been shaved, but I was then, and am now, six weeks later, or nine weeks from the time at which the head was shaved, hardly

able to detect any difference between the parts from which the hair fell and those from which it was cut, there being merely a slight roughness perceptible on passing the hand over the latter, whilst the former feel quite smooth. In an ordinary and healthy individual the hair would have got much longer in the time. The eyebrows and eyelashes have also disappeared.

It is intelligible, however, that, in patients in whom there is a want of power necessary for the proper nutrition of the hair, a slight exciting cause, and one which would be quite inoperative in a perfectly healthy individual, shall suffice to cause a rapid shedding of the hair. In this way a fungus might assist in producing the disease in those already predisposed to it, and give the disorder, in such cases, the aspect of contagiousness. In no other way can I account for the spreading of the disease in a manner like that witnessed in the school at Hanwell.

Diagnosis. — In tinea tonsurans baldness, though a common, is nevertheless an accidental result, whilst structural changes in the hairs themselves are invariably met with. In tinea decalvans the reverse, to a certain extent, holds good, for baldness is essential, whilst alteration of the hairs is, to the naked eye, often imper-

ceptible; yet, as I have insisted on already, some hairs do break off short in this disease, leaving little club-shaped pieces imbedded in and projecting more or less above the level of the skin. It should, therefore, be borne in mind, that clipping of the hairs, which has generally been mentioned only in connection with tinea tonsurans, does often occur on a small scale in tinea decalvans, and does not, *per se*, indicate the presence of a fungus.

Some cases of tinea tonsurans, those, for instance, in which the fungus attacks individuals whose hair-forming power is feeble, and in whom, therefore, baldness readily occurs, might, by a superficial observer, be mistaken for instances of tinea decalvans; but the existence of changes (twisting, brittleness, &c.) in the hairs round the bald spot, and the scurfiness of the latter, will generally serve to establish the difference. If doubt still remains, it will be at once dissipated by the use of the microscope.

Though, with the exercise of moderate care, there will be rarely any difficulty in recognising this affection, the following cases illustrate the need of careful inquiry and examination.

A. B., ætat. 31, had, on the back of the head, a circular patch which was totally devoid of

hair; this spot, of the size of a florin, had been bald for four or five years; I found, on inquiry, that the hair had got thin and fallen out gradually, and it was evident that the loss, ascribed by the patient to ringworm, was really due to the irritation of hair pins, which were so placed as to always press upon this part.

The influence of friction in preventing a proper growth of the hair is sometimes very marked, and its effects may be often seen on the calves of those who cross their legs when sitting, also on the radial side of the wrists where the wrist-bands and coat-sleeves rub. The hairs are sometimes completely wanting at these parts; at others they are quite short, as if cut off just above the skin, whilst those around remain of proper length.

E. T. complained of local baldness, which had lasted for many months, and was supposed to have been caused by a wound of the scalp. On examination I found, towards the top of the head, two bald places; one of these was very small and corresponded to a scar, whilst the other, somewhat irregular in shape, was nearly as large as a shilling piece, and presented no trace of a cicatrix. I then ascertained that the hair had fallen from this latter spot, not immediately, but some

weeks, after the injury, and the aspect of the place, with its further progress, proved it to be a case of tinea decalvans, following, but probably independent of, an injury of the scalp.

Treatment.—Stimulation of the part from which the hair has fallen is the point of greatest importance in the treatment of tinea decalvans; and I have generally observed that, when blistering and suppuration are very readily excited, the restoration of the hair is more difficult than when the skin will tolerate comparatively strong applications. Sometimes a lotion or ointment strong enough to raise a blister, will, the first time it is used, so stimulate the part as, without further means, to cause the hair to grow; more commonly, however, the treatment has to be continued for a long time, and remedies sufficiently strong to keep the skin red without causing a discharge will generally answer best. Iodine, cantharides, and croton oil may be employed for this purpose, in the form of either liniment or ointment. When the skin begins to get sore, their use should be discontinued for a time, or they should be employed less frequently than before, the object being to keep the small vessels of the part constantly and preternaturally filled. The strength of the preparation must depend,

therefore, on the frequency with which it is applied, and the degree of sensitiveness of the skin. But, though local stimulation is so beneficial, the adoption of means for improvement of the health, when this is enfeebled, must not be omitted; and, for this purpose, tonic drugs, diet, and regimen will often be required. Some persons rely on arsenic, but I have not myself obtained so much benefit from it in this as in some other forms of skin disease.

TINEA FAVOSA.

Syn. Favus. Porrigo favosa. Porrigo lupinosa. Porrigo scutulata. Tinea maligna. Teigne. Tinea rugosa. Scall-head. Honeycomb scall.

This form of ringworm is rarely seen in England, and is more serious than any of those already described, as it is apt to damage the hair follicles and destroy their power of forming new hairs; when this occurs it produces, of necessity, not merely temporary but permanent baldness.

Tinea favosa, like tinea tonsurans, is always due to the action of a fungus (achorion Schönleinii) which grows into the hair follicles, in the interior of the hairs, and also among the epithelium of the scalp. The mycelium and sporules may

be readily recognised under the microscope; the sporules being oval in shape, and larger than those of the trichophyton tonsurans. In tinea tonsurans crusts and scabs form no part of the disease, being, when present, merely accidental complications; but in favus, on the other hand, crusts always occur, and exhibit peculiarities which distinguish them from ordinary scabs. They are of bright yellow colour, and form a sort of cup, from the depressed centre of which (in the early stage) a hair protrudes. They are produced by the accumulation of a yellow substance at the orifice of a follicle and around the hair which projects from it. When, instead of one hair, many neighbouring ones are affected, the crusts are large in proportion, and consist of an aggregation of small crusts similar to those I have just described. If one be removed, there will be seen a depression in the skin, which, though red at this spot, is not usually raw. When examined under the microscope they are found to consist of sporules and mycelium, and are not, therefore, like common scabs, the result of suppuration; but pustules containing pus, and going on to the formation of scabs, may be mixed up with the characteristic crusts of favus; and, when such scabs are removed, the skin beneath them will be

found excoriated. In such cases, there is another and common form of skin disease (impetigo) complicating favus. Tinea favosa commonly attacks the head, but it may affect any part of the body. On the head it sometimes occupies a small spot only, at others spreads extensively. It is undoubtedly contagious, and for its occurrence contact of the fungus is absolutely necessary; but, as in tinea tonsurans, the skin must be fit for the reception of the cryptogam, which will take root more readily on some skins than on others. Of the influence of herpes circinnatus in so modifying the skin as to make it a favourable soil for the growth of this and other fungi, I shall speak presently, when describing that form of ringworm. The hairs round which the crusts form become twisted and discoloured, and ultimately fall out.

The odour of the crusts of favus is very disgusting and offensive; and pediculi are apt to appear in the heads of those attacked by this disease; when present, they often multiply quickly, as, getting into the fissures of the crusts, they cannot be removed with the same facility as when the scalp is healthy. The itching of favus is considerable, and is, of course, increased when vermin are present.

Diagnosis.—The yellowness of the crusts, their

cup-shaped character, and the alteration of the hairs which, after becoming twisted and brittle, fall out, will generally enable the observer to detect the nature of this disease without the use of the microscope; but in all cases of doubt the aid of that instrument should be obtained, for the crusts of true favus are sometimes pale and irregular in form, whilst scabs of impetigo are often mixed up with them. Common impetigo may also cause shedding of the hair, but the preliminary changes (opacity, brittleness, twisting, &c.) which occur in favus are not seen in impetigo. The latter disease is, in fact, that with which favus is most likely to be confounded; but the mistake will not occur if the above points of difference be borne in mind, and if it be remembered that favus and impetigo often occur together.

Treatment.—What was said on this subject respecting tinea tonsurans applies, almost word for word, to tinea favosa. If the health be bad, it must be improved; but the fungus must be destroyed, and the remedies which are applicable in the one case will serve in the other. The crusts must be removed as speedily as possible, and this may be effected either by poulticing, or, as Dr. Jenner recommends, by means of lint soaked in a saturated solution

of sulphurous acid and covered with oil-silk to prevent evaporation. Sulphurous acid, at the same time that it loosens the crusts, exercises a destructive influence on the fungus, and is on this account doubly useful.

As the fungus in this disease spreads into the hair follicles, and after a time injures them so as to produce permanent baldness, it is of course highly necessary to kill the parasite as soon as possible; and, as epilation certainly facilitates this, it should always be had recourse to when circumstances permit. In consequence of the changes in and around their roots, the hairs come out more easily than when they are healthy, and should be pulled in the direction of the line of their implantation in the skin.

The growth of the new hair should be anxiously watched, and the reappearance of crusts carefully looked for, as the old phenomena will return and gradually increase, if ever so little of the fungus has escaped destruction.

When favus affects the trunk, it is cured much more readily than when it occupies the head; if neglected in the latter situation, it will spread over the entire scalp, seriously damage the deep tissues of the skin, and ultimately produce the most lamentable results.

HERPES CIRCINNATUS.

Syn. Vesicular Ringworm. Tinea circinnata.

This is the common ringworm of the trunk. It has been supposed by some to be identical with tinea tonsurans, because, when some of the scurf from a part affected by it is examined with the microscope, there is sometimes seen a fungus, which cannot be distinguished from, and doubtless is the same as, that found in the latter disease. But this fungus is not always present in herpes circinnatus, whilst tinea tonsurans cannot exist without it, and the true relation between these diseases seems to be as follows: herpes circinnatus makes the part affected by it a soil most favourable for the growth and propagation of the fungus now under consideration, and one on which, if the spores fall, they are almost sure to take root.

Herpes circinnatus begins as a small red spot which increases at the circumference at the same time that it gets well in the centre. In this way is formed a circular patch, which is red, rough, and scaly, except at its centre, where the skin is more yellow than it should be. This return of the skin of the centre to its normal state, whilst the patch is extending at its margin,

is not invariably met with, some patches being equally red and rough throughout. By careful examination with a lens, two or three small vesicles will be often seen, and it is by the formation of these tiny tetters that the disease spreads; hence they should be sought for at the edge of the patch, though they are sometimes present at the centre, for in this part *successive* crops of them occasionally form. The patches are generally small, but sometimes acquire considerable dimensions; they may be single or multiple, and occur upon any part of the body. Though generally circular in shape, they are not necessarily so, and I have seen one extend upwards on the forehead in a flask-shaped form. The disease is strictly local, almost confined to children, and contagious.

Not only does herpes circinnatus modify the skin so as to make it a fit receptacle for the fungus of tinea tonsurans (tricophyton tonsurans), but parts affected by it are equally prone to be invaded by that of tinea favosa (achorion Schönleinii); and hence a child who, having favus, has mixed with other children without communicating the disease, may at once do so if those children get herpes circinnatus; the parts attacked with the latter complaint being those upon which the favus first shows itself.

There is another form of herpes circinnatus which occurs in adults as frequently as in children, but is much less common than that I have just described. In it, the vesicles are large, and readily detected by the naked eye; so that, instead of looking scurfy only, the patch is studded with pimples. These pimples contain a fluid which is at first clear and transparent, afterwards opaque, and ultimately dries into a little dark-coloured scab. The scabs generally fall off in the course of a week or ten days from the commencement of the disease which is then cured, though the skin at the affected parts remains for some time darker than it should be. In other cases, a fresh crop of vesicles appears on the same patch and lengthens the attack, or other patches may arise on different parts of the body. Herpes zoster (shingles) sometimes assumes a similar appearance, as in the following case, which is that of a patient now under my care.

E. T., ætat. 10, noticed, two weeks ago, three patches on the left side of the chest: one, of the size of a florin, in the middle line in front; a second and smaller one, about half way between this and the spine; and a third still farther back. The last was higher up than the second, which, in its turn, was higher than the one in front. On

passing the finger along it was found that they all occupied a line corresponding to the ninth intercostal space. The vesicles were distinct, and the patient was feverish and without appetite. Besides the smarting and soreness from the patches themselves, the patient has experienced pain round the left side of the chest; this the mother attributed to indigestion, as it was generally worse after meals, but it is more likely to have been of nervous origin and wholly dependent on the shingles. The child is now well in health, and the vesicles having dried up and scaled off, have left merely a little redness of the skin. But the child has had, during the last six weeks, patches of the common scurfy form of herpes circinnatus; the first of these appeared on the left shoulder, and is now as large as a half-crown piece; a little later, two similar places were seen on the opposite shoulder, but these have since got well. A younger sister of this patient has caught the disease within the last three weeks.

As then, in one patient, we have two different cutaneous eruptions to both of which the term herpes has been given, it may be inquired what connection, if any, exists between them. The two diseases are quite distinct and in no way related to each other; their occurrence in the same in-

dividual, at the same time, being unusual and purely accidental. Herpes zoster is associated with constitutional disturbance, is non-contagious, and runs its course in a few days; whilst herpes circinnatus is a strictly local affection, communicable to others, and apt to last for a very long time.

Treatment.—For the common form of herpes circinnatus, that in which, when examined by the naked eye, the part has merely a scurfy aspect, no internal remedies are required; but topical applications, containing some stimulant or astringent, will in all cases require to be employed.

When a fungus is present, the same substances which have been recommended for its destruction in tinea tonsurans are equally applicable in this disease, and as, without the microscope, the fungus, if present, cannot be detected, it is well for those who have not this instrument at their command, to prescribe always some known parasiticide. There is no doubt that a cryptogam, when present, tends to keep up the disease; and I think it probable that the presence or absence of this element, may help to explain the difference in the facility with which herpes circinnatus is got rid of in different individuals. In some, for instance, a very mild and simple application will cure it, whilst in others it sometimes resists, for

a considerable period, the employment of much stronger remedies. A lotion containing bichloride of mercury is a convenient agent for carrying out this object, and may be used in conjunction with any other substance for which the Surgeon has a preference. When milder means have failed, a very strong solution of nitrate of silver, or the solid caustic, may be applied to the part, and after the blistering thus occasioned, the disease generally disappears.

Though so unimportant in itself, occasioning, when limited to the extremities and trunk, merely a little disfigurement and itching, herpes circinnatus should never be allowed to go on unchecked; for, if it spread to the scalp, and the spores of the tricophyton tonsurans gain access to it, the fungus will take root, and tinea tonsurans be thus established. This disease is far more troublesome and more difficult to get rid of than herpes circinnatus.

A point, to which I have referred in connection with some of the diseases already described, must not be forgotten in the treatment of herpes circinnatus; I mean the persistence of redness and roughness in consequence of the continued use of irritating applications; for the true herpes circinnatus, being cured, may be replaced

by a kind of pityriasis or eczema wholly dependent on the remedies employed. The same thing must be borne in mind in determining the nature of the disease in a patient who has been already under treatment, for the patch may be considerably altered in appearance by what has been applied to it.

For that form of herpes circinnatus in which the vesicles are large, no treatment is required, as the disease will run a certain course, and then get well spontaneously. Care, however, should be taken to protect the patches from friction by the dress, as they may otherwise get greatly irritated and inflamed.

HERPES IRIS.

Syn. Rainbow Ringworm.

This, which is merely a variety of herpes circinnatus, consists of one or more patches, of circular form, presenting several concentric rings, of various shades of red. On these rings vesicles appear, and, according to their size, either burst so as to form tiny crusts, or dry up into thin small scales. It is a very rare form of skin disease, occurring only during childhood, and most

commonly, though not always, on the backs of the hands. There are no constitutional symptoms, and very little inconvenience of any kind. It gets well without treatment.

Diagnosis.—The concentric rings with vesicles upon them distinguish this from every other form of skin disease.

ROSEOLA ANNULATA AND ERYTHEMA CIRCINNATUM.

These diseases are generally described separately, but, as the differences between them are rather those of degree than of kind, I propose to consider both under the same head.

They begin as red spots, which, like those in herpes circinnatus, spread centrifugally, whilst, in the centres, the skin tends to return to its natural condition; there are, however, neither vesicles nor distinct scales, but merely red rings, within which the skin is healthy or nearly so. Both run an acute course, disappearing after a week or two, and are frequently attended with slight febrile disturbance. They are also apt to arise in the course of some other diseases, especially of rheumatic fever.

The points of difference, on the strength of

which roseola annulata and erythema circinnatum have been considered distinct diseases, are the following:—

1st. In erythema the skin is slightly, but perceptibly, swollen at the site of the ring; in roseola not.

2nd. In erythema the ring terminates abruptly at its outer margin; whilst, in roseola, it shades off gradually.

3rd. In erythema the skin in the centre of the patch retains for a time a yellowish tint, and in roseola returns at once to its natural colour.

There is a variety of erythema circinnatum which often lasts a long time and has been called erythema marginatum. In it the rings are often incomplete, forming curved bands instead of complete circles. Their depth of colour is greater, and they are more raised above the surrounding skin, than those of the common form. It generally occurs in delicate and elderly persons.

Diagnosis.—These diseases are distinguished from herpes circinnatus by the absence of vesicles. Though epithelial scales are thrown off at one stage of the disease more abundantly than in health, there is no perceptible scaliness or roughness; redness, with slight swelling, being the characteristic symptoms.

Between roseola and erythema there is, as I have already said, no essential difference.

Treatment.—When erythema occurs in the course of rheumatic fever, the treatment of the latter disease need not be modified in consequence; and, under other circumstances, a mild aperient and attention to the diet will be all that is required.

For erythema marginatum tonics are wanted, as this disease attacks those only whose health is impaired, and who often are the subjects of some incurable disease. Dr. A. Todd Thompson found bark answer, for this purpose, better than quinine.

LICHEN CIRCUMSCRIPTUS.

This form of ringworm very much resembles herpes circinnatus. It consists of one or more patches of round or oval form, which are slightly redder than the surrounding skin, and studded, especially towards the margins, with little hard papules. These papules subside after a time, with slight desquamation of the epithelium on them, leaving a trifling roughness of the part; but others may succeed, and the disease is in this way apt to be prolonged; moreover, as one patch disappears, others often come. The patches spread

centrifugally by fresh eruption at the margins, in the same manner as those of herpes circinnatus and erythema circinnatum. They are most frequently met with on the forearm, back of the hand, and breast.

Diagnosis.—Considerable difficulty may be experienced in distinguishing this disease from herpes circinnatus. Both appear as small spots, which increase at the margins, and get well in the centres. In both the patches are rough and red, with, at some stage of their progress, more or less distinct, though often very small, pimples; they may be single or multiple, and may occur on similar parts of the body. What, then, is the difference between them? In herpes the pimples contain fluid, or in other words are vesicular, whilst in lichen they have none, being papular. This guide, apparently so definite and trustworthy, is in practice less available than a novice might expect; for the patient may come under notice at a time when, a crop of vesicles or papules having just subsided, there is nothing perceptible beyond a trifling roughness of the part; or the patch may have been scratched and rubbed, and its appearance altered from this cause; whilst in the common or furfuraceous variety of herpes circinnatus the vesicles are, at

all times, liable to be overlooked. Some, indeed, go so far as to say that, in this affection, the patches are merely rough and scaly from the first; but careful watching with a lens will, I think, generally enable the observer to detect at least a few vesicles at some period of the disease.

The edge of the patch is, in both disorders, the part to which attention should be especially directed, as it is there that the newly formed vesicles and papules usually show themselves.

There is generally greater redness in herpes circinnatus than in lichen circumscriptus.

The presence of pimples distinguishes lichen circumscriptus from roseola and erythema.

Treatment.—After a tonic and saline aperient, continued for a week or two, arsenic should be administered. The diet should also be carefully attended to. The preparation of arsenic to which I give the preference, is Fowler's solution, given in 3 to 5 minim doses, three times a day, after meals. To the part itself one of the following substances may be applied: bichloride of mercury, nitrate of silver, iodide of sulphur, or biniodide of mercury. The last two are best used as ointments, containing of the iodide from 1 to 2 scruples, and of the biniodide from 5 to 20 grains, to 1 ounce of lard.

PITYRIASIS.

Syn. Herpes furfuraceous.

This disease sometimes occurs in the form of small roundish patches, in which the skin is merely red and rough, with scales no larger than those met with in herpes circinnatus. It may appear thus on any part of the body, but is particularly common on the face. It is attended with considerable itching, and occurs chiefly in those whose skins are delicate and sensitive. In such persons, exposure to a cold wind or the sun's rays will readily cause the evolution of these patches which are often to be distinguished, only with great difficulty, from those of herpes circinnatus. The points to which attention should be directed, in establishing the difference, are as follows:—

1st. The mode in which the patches have originated. In herpes circinnatus they begin as small spots, which spread gradually and evenly at their margins, increasing equally in all directions. In pityriasis the patches are of the same size from the beginning, or they spread irregularly.

2ndly. In herpes circinnatus the skin in the

centres tends to resume its normal state at the same time that the disease is spreading at the margins of the patches. In pityriasis this does not occur.

3rdly. In herpes circinnatus, but not in pityriasis, a few small vesicles may generally be detected by a lens. The mere absence of vesicles, however, is not enough to prove that the disease is other than herpes circinnatus ; for in the furfuraceous variety (that I am now referring to), as I have already said, they are always very small, and the patch may be examined at a time when, a crop having recently dried up, there is no trace of them beyond a few small scales.

4thly. The patches of pityriasis are rarely so regularly circular as those of herpes circinnatus.

Treatment.—Pityriasis will not bear the strong stimulating applications which are often so very useful in herpes circinnatus. A little simple ointment, which acts merely by protecting the part from exposure to the air, will often cure it, and an endeavour should always be made to ascertain the cause of the disease. This is sometimes removable: thus, when pityriasis is occasioned by the use of soap, either something should be substituted for this in cleansing the face, or the mildest and least irritating varieties

should be employed. Frequent washing is injurious in these cases, yet patients often bathe the affected part under an impression that they will, in that way, 'relieve the inflammation.' When the patch is seated near the mouth, the patient should be warned against moistening it with the tongue, a habit very common in some children, for pityriasis, at this part, is often not only kept up but originated in this way, and will therefore disappear as soon as the habit is discontinued. When liable to be brought on by exposure, the disease may sometimes be prevented by covering the face with a veil, or by applying a little glycerine or simple ointment before going out into the air, especially on cold and windy days. In some pityriasis will arise through indulgence in eating and drinking, and in others it occurs only when the health gets below par.

ECZEMA.

I HAVE occasionally seen eczema assume a form in which, for a short time, it has been difficult to distinguish it from herpes circinnatus. The following is an instance of the kind:—

D. N., ætat. 50, noticed, on the right forearm,

two small circular patches of recent origin, which were red and rough, and itched considerably. There was a slight serous discharge, which the patient ascribed to his having scratched them. When seen a little later, the eczematous nature of the disease was evident; for on the other arm there was an irregular patch, having all the characters of eczema, and each of the old spots was covered with a thin dry crust.

As a rule, a patch of eczema, though circular at first, will soon spread irregularly, or other irregular patches will arise; scattered vesicles are also apt to form in the neighbourhood of the old spot. Eczema, moreover, does at some stage generally give rise to a distinct watery discharge; whilst in the common or furfuraceous variety of herpes circinnatus, the surface is quite dry; and in the other form, the vesicles are larger and more distinct than those of eczema, and dry into small and separate scabs, instead of causing a general serous oozing from the surface.

Treatment. — As eczema, especially in the adult, is often the result of some local irritation, any cause of this kind should be sought for, and, if found, removed. For small patches, such as occurred in the patient just referred to, a little zinc ointment, and attention to the diet,

will generally effect a cure. But the ointment should not be frequently and vigorously rubbed in, as patients love to do, but merely applied to and kept constantly, though gently, in contact with the part. For this purpose it should be spread on lint. Friction by the dress will often keep up a patch of eczema, and is prevented with great difficulty when the disease is seated on the neck. If the eruption spreads and becomes extensive, with much redness and swelling, tepid Goulard water is the best application till, the inflammation having subsided, the skin is in a fit state to be benefited by some mild stimulant such as zinc. Should the disease become chronic, with little inflammation of the skin, stronger stimulants will be required, and, in such cases, much good may be derived from a proper regulation of the diet. In many chronic cases steel and arsenic will be found very useful, but as eczema only rarely, and as it were accidentally, takes on a form which brings it into the ringworm class, I abstain from entering more fully into a description of its treatment.

PSORIASIS CIRCINNATA.

Though psoriasis is, generally, little likely to be mistaken for any of the diseases I have now described, there is one variety of it which has many points of resemblance to some of them, and must therefore be included in the ringworm group. Instead of giving a full description of psoriasis, which is one of the most common and most troublesome cutaneous disorders, I propose to limit my observations to this particular species (psoriasis circinnata), which shows itself in the form of round and oval patches, with healthy centres and thickened margins. These thickened parts are red, and covered with opaque, white, shining scales. The thickness of the scales, though liable to vary, is generally sufficient to give a distinctive character to the patch. When rubbed off they are quickly reproduced, and may be absent from one part of the ring though thick upon the rest. As the disease declines, the scaliness becomes less and less marked, and ultimately disappears. The part within the ring, though generally clear, is not always so, but sometimes becomes covered, more or less completely, with scaly spots

and patches. On the other hand, the ring may be incomplete, forming merely a curved line.

This form of psoriasis is not contagious; it is of constitutional origin, and has neither an animal nor a vegetable parasite. It, or rather the tendency to it, is often hereditary, and after disappearing it is prone to recur.

Diagnosis.—The size and general characters of the scales distinguish this from every other form of ringworm; even when the disease is subsiding and scales have ceased to form, there being merely redness and thickening of the skin, the knowledge that they were, at one time, present, will facilitate the diagnosis. The rings of psoriasis circinnata often attain a much larger size than those of herpes, lichen, &c. When in doubt as to whether a case has been one of psoriasis or not, I have sometimes derived great assistance from an examination of the head, elbows, and knees; thick accumulations of scurf here and there on the scalp, and small scaly spots on the knees and elbows, are common in all forms of psoriasis, and will sometimes decide the nature of an otherwise doubtful eruption.

I have seen some very perfect rings of psoriasis circinnata when the disease has been of syphilitic origin, and, in such cases, even when the history

has failed to suggest its syphilitic nature, the eruption itself or disease of some other part, especially of the mucous membrane of the tongue and throat, has enabled me to detect the cause of the disorder.

Treatment.—In psoriasis great attention must be paid to the diet, which, though nutritious, should be mild and unstimulating; care in this respect is particularly important so long as the skin at the affected part is very hot and red; at this time, too, a mild aperient and bitter may be given, but, when the skin gets more dull in colour, arsenic should be administered. The outcry made by some against this drug is both unreasonable and unjust; for, though it is a poison, the same must be said of most things in the pharmacopœia, which are poisonous or not according to the quantity prescribed; and it is no more necessary to give a poisonous dose of arsenic than of any other drug. The objection to its use, founded on the fact of its coming from the mineral rather than the vegetable kingdom, is scarcely more important; for there are some minerals so harmless that they are used in large quantities as domestic remedies, whilst many vegetable drugs, as for instance strychnine, are far more virulently poisonous than arsenic.

Pitch and tar are the best local applications; and if the ointments of the pharmacopœia irritate too much, increasing the heat and redness of the skin, they should be diluted by the addition of some mild preparation, such as zinc or spermaceti ointment.

Topical applications are of less value than internal remedies in the treatment of psoriasis, and often appear to do more good than they actually do; their continuous use diminishes, or prevents for the time being, the formation of scales, but these are apt to reappear when the inunction is discontinued.

For syphilitic psoriasis a different treatment will obviously be required.

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